

REMARKS

Claims 1 – 48 are pending. Claims 13 – 20 and 22 – 48 are withdrawn from consideration. In accordance with the foregoing, claims 1, 2 and 22 are amended. Withdrawn claims 22, 24 39 and 45 are also amended herein so that the withdrawn claims will be in condition for rejoinder when a generic or linking claim is found to be allowable. No new matter is presented in this Amendment.

Allowability of claims directed to the elected species of Formula (1)

Applicants appreciate the indication by the Examiner at page 2 of the Office Action that a non-aqueous electrolyte of a lithium secondary battery having an additive comprising a compound of Formula (1) would be allowable. The Applicants respectfully submit that the full scope of amended claims 1 – 12 and 21 are allowable for the reasons presented herein.

Rejection of claims 1, 3 – 6 and 8 – 11 under 35 U.S.C. §102(b) over Shen et al.

At page 3 of the Office Action, claims 1, 3 - 6, 8 - 11 were rejected under 35 U.S.C. §102(b) as being anticipated by Shen et al. (U.S. Patent 5,030,528). The Examiner alleged that Shen et al. teaches an electrolyte comprising a nonaqueous solvent including a mixture of 2-methyltetrahydrofuran, ethylene carbonate, ethylene propylene diene terpolymer, 2-methylfuran and lithium arsenic hexafluoride. For the following reasons, this rejection is respectfully traversed and reconsideration is requested.

Independent claim 1 is amended herein so that the definition of Y₁ in formula (2) does not include O or S and so that the definition of Y₄ in formula (6) does not include S. This amendment has the effect that 2-methylfuran is excluded from the genus of additive compounds. Therefore, the rejection should be withdrawn.

Rejection of claims 1, 3 – 6 and 8 – 11 under 35 U.S.C. §102(b) over Sekino et al.

Also at page 3 of the Office Action, claims 1, 3 - 6, 8 - 11 were rejected under 35 U.S.C. §102(b) as being anticipated by Sekino et al. (U.S. Patent 6,787,269). The Examiner alleged that Sekino et al. describes an electrolyte comprising EC, BL, 2-methylfuran, LiBF₄ and LiN(C₂F₅SO₂)₂. For the following reasons, this rejection is respectfully traversed and reconsideration is requested.

As noted above, independent claim 1 is amended herein so that the definition of Y₁ in

formula (2) does not include O, thereby excluding 2-methylfuran from the genus of additive compounds. Therefore, the rejection should be withdrawn.

Rejection of claim 7 under 35 U.S.C. §102(b) or, in the alternative, under 35 U.S.C. §103(a) over Shen et al. or Sekino et al.

Also at page 3 of the Office Action, claim 7 was rejected under 35 U.S.C. §102(b) as anticipated by or, in the alternative, under 35 U.S.C. §103(a) as obvious over Shen et al. or Sekino et al. The Examiner alleged that since Shen et al. and Sekino et al. teach the same electrolyte comprising a lithium salt, an organic solvent and a 2-methylfuran additive, then the additive would inherently form a passivation layer on the surface of the positive electrode. For the following reasons, this rejection is respectfully traversed and reconsideration is requested.

As noted above, independent claim 1 is amended herein so that the definition of Y₁ in formula (2) does not include O, thereby excluding 2-methylfuran from the genus of additive compounds. Therefore, the rejection should be withdrawn.

Rejection of claims 2 and 21 under 35 U.S.C. §103(a) over Shen et al. [in view of Ohsawa et al.]

At page 4 of the Office Action, claims 2 and 21 were rejected under 35 U.S.C. §103(a) as being anticipated by Shen et al. (Since the Examiner bases her allegations on the alleged teachings of Shen et al. in combination with alleged teachings of Ohsawa et al., (U.S. Patent No. 5,223,353), Applicants assume that the rejection was intended to be over Shen et al. in view of Ohsawa et al.) The Examiner alleged that Shen describes the electrolyte including 2-methylfuran. The Examiner acknowledged that Shen et al. does not describe 2,5-dimethylfuran as the additive compound. The Examiner alleged that Ohsawa teaches an additive including 2-methylfuran and 2,5-dimethylfuran. The Examiner took the position that it would have been obvious to use 2,5-dimethylfuran instead of 2-methylfuran in the electrolyte of Shen et al.. For the following reasons, this rejection is respectfully traversed and reconsideration is requested.

Claim 2 is amended herein to delete 2,5-dimethylfuran, and claim 21 is amended herein to delete 2,5-dimethylfuran, 2-acetylfuran, 2-acetyl-5-methylfuran from the claimed subgenus of additive compounds. Therefore, the rejection should be withdrawn.

Rejection of claims 1, 3 – 6, 8 – 12 under 35 U.S.C. §103(a) over Suemori et al. (JP 7-

192756, abstract)

Claims 1, 3 – 6, 8 – 12 were rejected 35 U.S.C §103(a) as being unpatentable over Suemori et al. (JP 7-192756, abstract). The Examiner alleged that Suemori et al. describes an electrolyte comprising LiPF_6 , LiAsF_6 in a solvent of EC, PC, BC, VC dimethyl carbonate, diethyl carbonate, ethylmethyl carbonate or furan. The Examiner acknowledged that Suemori et al. does not specifically teach that EC, PC, BC, VC dimethyl carbonate, diethyl carbonate or ethylmethyl carbonate and furan are present in the electrolyte. The Examiner took the position that it would have been obvious to combine furan and one of the other solvents. For the following reasons, this rejection is respectfully traversed and reconsideration is requested.

As noted above, independent claim 1 is amended herein so that the definition of Y_1 in formula (2) does not include O, thereby excluding furan from the genus of additive compounds. Therefore, the rejection should be withdrawn.

CONCLUSION:

There being no further outstanding objections or rejections, it is submitted that the application is in condition for allowance. An early action to that effect is courteously solicited.

Finally, if there are any formal matters remaining after this response, the Examiner is requested to telephone the undersigned to attend to these matters.

If there are any additional fees associated with filing of this Amendment, please charge the same to our Deposit Account No. 503333.

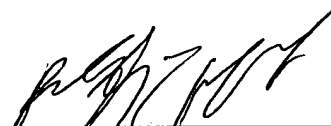
Respectfully submitted,

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